In the Claims

1-25. (Canceled)

26. (Currently Amended) A welding system comprising:

a power source having a controller to regulate welding operation;

an electrode holder configured to hold an electrode in relative proximity to a workpiece such that a welding arc is created between the electrode and the workpiece, the electrode holder having a trigger that when activated commences a welding process;

a transmitter configured to detect activation of the trigger and, responsive thereto, transmit a solitary rectangular voltage pulse indicative of desired welding operation through at least a welding power conductor ~~cable~~; and

a receiver remote from the transmitter and configured to receive the pulse and instruct the controller to regulate the power source according to the desired welding operation.

27. (Previously Presented) The welding system of claim 26 wherein the transmitter is further configured to transmit the pulse through a pair of weld cables and the electrode holder.

28. (Previously Presented) The welding system of claim 26 wherein the desired welding operation includes at least one of a magnitude of power source output and a power source mode.

29. (Previously Presented) The welding system of claim 28 wherein power source mode includes one of constant current and constant voltage.

30. (Previously Presented) The welding system of claim 26 wherein the pulse causes the receiver to further instruct the controller to energize an output circuit of the power source upon activation of the trigger.

31. (Previously Presented) The welding system of claim 26 wherein the pulse has a width from approximately 10 milliseconds to 750 milliseconds and wherein the pulse has a constant magnitude.

32. (Previously Presented) The welding system of claim 31 wherein the width of the pulse varies according to a desired output of the power source.

33. (Previously Presented) The welding system of claim 31 wherein the transmitter is further configured to transmit the pulse each time the trigger is activated.

34. (Currently Amended) The welding system of claim 26 further comprising a wire feeder connected to the electrode holder and connected to the power source via the welding power conductor ~~cable~~, wherein the transmitter is further configured to output a signal that causes the wire feeder to automatically supply consumable wire to the weld.

35. (Previously Presented) The welding system of claim 34 wherein the wire feeder includes a portable wire feeder constructed without a contactor assembly.

36. (Previously Presented) The welding system of claim 26 wherein the controller includes voltage sensing circuitry configured to detect start commands and reference commands from the transmitter and current sensing circuitry designed to detect arc current and maintain activation of the power source output when an arc current is present.

37. (Previously Presented) The welding system of claim 26 configured for at least one of a MIG welding process, a TIG welding process, a flux cored welding process, a stick welding process, a submerged arc welding process, and a gouging process.

38. (Currently Amended) A welding system comprising:

a power source configured to condition raw power and supply a power usable during a welding process;

a wire feeder configured to receive the power from the power source and supply a consumable electrode to a weld, the wire feeder having a torch connected thereto and having a transmitter configured to detect activation of the torch and transmit a single rectangular pulse to a receiver of the power source indicative of activation of the torch; and

a welding cable constructed to transmit welding-type voltage and connecting the power source and the wire feeder such that the pulse is transmittable thereacross from the transmitter to the receiver, the power source and wire feeder connected such that ~~a~~ the welding-

type voltage is not created across the welding cables until the transmitter transmits the pulse to the receiver signaling that the torch has been activated.

39. (Previously Presented) The welding system of claim 38 configured to not have an open circuit voltage across the welding cables when the power source is powered on and the torch is not activated.

40. (Previously Presented) The welding system of claim 38 wherein the power source further includes circuitry such that a secondary power is not output until activation of the torch.

41. (Previously Presented) The welding system of claim 40 wherein the wire feeder is further configured without a contactor to close a circuit between a secondary power output of the power source and the torch.

42. (Previously Presented) The welding system of claim 38 wherein the transmitter is further configured to transmit the pulse to the receiver encoded with information regarding desired operational parameters of the power source, wherein the pulse has a width from approximately 10 milliseconds to 750 milliseconds and wherein the pulse has a constant magnitude.

43. (Previously Presented) The welding system of claim 42 wherein the desired operational parameters include at least one of power source output magnitude, power source welding mode, purging, and jogging.

44. (Previously Presented) A method of remotely controlling a power source for welding comprising the steps of:

detecting activation of a triggering mechanism of a welding-type torch to initiate a welding-type process;

automatically transmitting not more than one rectangular voltage pulse per activation of the trigger indicative of desired operational parameters of the power source through at least a weld cable;

receiving the pulse remotely from the trigger mechanism; and

controlling the power source in accordance with data embodied in the pulse transmitted through at least the weld cable.

45. (Previously Presented) The method of claim 44 further comprising the step of preventing an open circuit voltage between the welding-type torch and the power source during non-activation of the trigger.

46. (Previously Presented) The method of claim 45 further comprising the step of only allowing current flow between the power source and the welding-type torch when the trigger is activated.

47. (Previously Presented) The method of claim 44 further comprising the step of varying a width of the pulse from approximately 10 milliseconds to 750 milliseconds to indicate a desired secondary output of the power source.

48. (Previously Presented) The method of claim 44 further comprising the step of receiving feedback of a voltage at a weld and automatically adjusting output of the power source based on the feedback.

49. (Previously Presented) The method of claim 48 further comprising the step of adjusting output of the power source to accommodate losses that occur across the weld cable between the power source and the welding arc.

50. (Currently Amended) A kit to retrofit a welder and wire feeder system, the kit comprising:

a transmitter to be disposed within a wire feeder and detect activation of a welding torch, the transmitter configured to transmit a single rectangular pulse over a welding power conductor upon torch activation;

a receiver to be disposed within a power source and electrically connected to the transmitter through the welding power conductor ~~cables~~; and

a controller to regulate operation of the power source such that a voltage is not created across the welding power conductor ~~cables~~ until an energize secondary voltage command signal is received by the receiver from the transmitter.